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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,115	06/20/2001	Shigeto Adachi	209937US-2	3477

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EXAMINER	
MAYEKAR, KISHOR	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/884,115	ADACHI ET AL.	
	Examiner	Art Unit	
	Kishor Mayekar	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,8,10-15,22 and 23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 8, 10-15, 22 and 23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In view of the appeal brief filed on 23 Sept. 2004, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 102 and 103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-5, 8, 10-15, 22 and 23 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over CREIJGHTON (5,766,447). CREIJGHTON ' invention is directed to a method and apparatus for treating an aqueous solution in which a pulsed electric field is generated in the aqueous solution between to electrodes. CREIJGHTON discloses in col. 1, lines 11-40 a known device for treating an aqueous solution comprises a reactor chamber which accommodates a hollow, needle-shaped electrode spaced from a second electrode in which a pulsed electric field is generated, wherein with peak voltages of 25-40 kV very high electric field strengths, for example, of 100 kV/cm are formed at the needle-=shaped electrode. CREIJGHTON also discloses the use of a layer of a dielectric material on at least one of the electrodes of the device permits field strengths to be used which are much higher than the field

strengths permissible in the known devices (col. 11, lines 50-53). CREIJGHTON discloses in claims 13-14, Fig. 5a, col. 9, lines 18-25 and lines 36-39 and col. 3, lines 16-20 that the device comprises all the structures as claimed and the use of a corona electrode with a needle diameter of 0.8 mm and a radius of curvature between 0.01 and 5 mm, and a voltage-pulse height of 1-100 k[V] wherein the diameter of the corona electrode and the voltage are within or overlapping the claimed range. The disclosure in the prior art of any value within the claimed range is an anticipation of that range. And where the range overlap disclosed by the prior, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified CREIJGHTON's teachings because overlapping ranges have been held to be obvious, *In re Wertheim* 191 USPQ 90.

As to the issue of field strength larger than 500kV/cm, since CREIJGHTON's diameter of the corona electrode and voltage are within or overlapping the claimed range, the issue would be inherently in CREIJGHTON's teachings.

As to the issue of the movement mechanism as claimed in claimed 8, since CREIJGHTON discloses in col. 9, lines 41-44 that the distance between the

grounded electrode and the corona electrode was variable, CREIJGHTON contemplates the recited issue.

As to the subject of claim 12, the reversal of parts have been held to be obvious. In re Gazda 104 US PQ 400.

As to the subject matter of claim 13, the selection of any of known equivalent movement mechanism would have been within the level of ordinary skill in the art.

As to the subject matter of claim 14, since CREIJGHTON discloses the experiments in two distances (col. 9, line 46 through col. 10, line 8), the provision of mechanical means or automatic means to replace manual activity has been held to be obvious, *In re Venner* 120 USPQ 192.

As to the subject matter of claim 15, since CREIJGHTON discloses the conversion of the treatment in the experiments, i.e. means for detecting the change in the treated liquid, the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

5. Claims 1-5, 8, 10-15, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over LOCKE et al. (6,491,797) in view of CREIJGHTON '447. LOCKE's invention, a reference cited in last Office action, is directed to a method of oxidizing organic contaminants in aqueous mediums using corona induced reactions, preferably pulsed streamer corona discharge procedures (col. 5, lines 18-25). LOCKE discloses in Fig. 2 and Example a schematic of a reactor vessel for carrying out the method, comprised a pair of electrodes in a point-to-plane geometry, at least one of the electrodes in rod shape being arranged to be dipped into a liquid and means for applying a pulsed power between the electrodes. LOCKE also discloses that the rod-shaped electrode is a hollow hypodermic needle (col. 7, lines 35-37), that the pulsed streamer corona discharge is produced by a rotating spark gap high voltage pulsed power supply, capable of supplying the electrodes with high voltage of 25-40 kV (col. 5, lines 49-54), that the voltage is at least about 20 to about 45 kV or more (col. 6, lines 16-19), that that the fast-rising, short duration voltage pulses produce a very high localized electric field (~100 kV/cm) (col. 8, lines 5-7), and the pulse voltage superimposition upon a small dc bias yields a higher peak voltage which further increases the streamer intensity but still avoids premature sparkover (col. 8, lines 10-13). The differences between

LOCKE and the instant claim is the detailing of the diameter of the hypodermic needle and the recited value of the field strength. CREIJGHTON shows a similar known device in col. 1, lines 10-40 and discloses that the use of an electric field strength as high as possible increases the treatment efficiency of the device (col. 1, lines 41-49) and above a specific field strength, arc discharges occurs (col. 1, lines 52-53). As such CREIJGHTON discloses that the known devices are capable of operating at higher field strength, however with a decreasing in treatment efficiency due to arc discharges.

Also CREIJGHTON discloses the use of needle shaped corona electrode of 0.8 mm in diameter (col. 9, lines 36-39). As such, the selection of needle diameter in LOCKE would have been within the level of ordinary skill in the art.

As to the subject matter of claim 8, the movement mechanism, LOCKE discloses that one of the dipped electrode is adjustable (see Fig. 2).

As to the subject of claim 12, the reversal of parts have been held to be obvious, *In re Gazda* 104 US PQ 400.

As to the subject matter of claim 13, the selection of any of known equivalent movement mechanism would have been within the level of ordinary skill in the art.

As to the subject matter of claim 14, the provision of mechanical means or automatic means to replace manual activity has been held to be obvious, *In re Venner* 120 USPQ 192.

As to the subject matter of claim 15, LOCKE discloses the testing of samples and the measuring of the sample's pH, the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

6. Claims 8 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over CREIJGHTON '447 in view of LOCKE '797. The difference between CREIJGHTON and the instant claims is the provision of the movement mechanism. LOCKE as applied above shows the provision of the limitation. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified CREIJGHTON's teachings as shown by LOCKE because the provision of mechanical means or automatic means to replace manual activity has been held to be obvious, *In re Venner* 120 USPQ 192.

As to the subject matter of each of claims 12-15, the preceding paragraphs applied to LOCKE are applied to each of the limitations.

Response to Arguments

7. Applicant's arguments filed in the appeal brief have been fully considered but they are not persuasive because of the new rounds f rejection as set forth in the paragraphs above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kishor Mayekar
Primary Examiner
Art Unit 1753